

IN THE CLAIMS

**Claim 1 (currently amended).** Static mixer/heat exchanger comprising a housing (6) having a product flow space for a product to flow through, said product flow space being provided with an inlet and an outlet, at least two tubes (1) which convey heat transfer medium through said product space, to heat or cool a product flowing through said product space passing into and out of the housing and being closed to the interior of the housing, a multiplicity of heat exchanger fins (2a, 2b) distributed over the circumference of the tubes (1), arranged in at least two parallel layers (7, 8) along the tubes (1), and wherein the fins (2a) and (2b) belonging to adjacent layers (7, 8) are rotated through an angle  $\alpha$  of  $45^\circ$  to  $135^\circ$  with respect to one another about the axis of the tubes (1), and wherein the fins (2a, 2b) are disposed at an angle  $\beta$  of  $\pm 10^\circ$  to  $\pm 80^\circ$  with respect to the main direction of flow (21) of the product through the housing (6).

**Claim 2 (original).** Mixer/heat exchanger according to Claim 1, wherein for each fin (2a) or (2b) belonging to a layer (7) or (8), there is an opposite fin (2a') or (2b') to this fin on the tube (1).

**Claim 3 (original).** Mixer/heat exchanger according to Claim 1, wherein the fins belonging to the successive layers (7) or (8) are arranged alternately over the length of the tube (1).

**Claim 4 (original).** Mixer/heat exchanger according to Claim 1, wherein the fins of adjacent layers (7, 8) are rotationally offset from each other by an angle of from  $85^\circ$  to  $95^\circ$  around the tube axis.

**Claim 5 (currently amended).** Mixer/heat exchanger according to Claim 1, wherein a plurality of tubes (1, 1') having fins (2a, 2b) are arranged next to one another, transversely with respect to the direction to be taken ~~(as in claim 4)~~.

**Claim 6 (previously presented).** Mixer/heat exchanger according to Claim 1, wherein the housing (6) has feedlines (4) and discharge lines (5) for a heat-transfer medium, which lines are respectively connected to inlets and outlets of the tubes.

**Claim 7 (original).** Mixer/heat exchanger according to Claim 1, wherein the tubes (1, 1') which are provided with fins (2a, 2b) are arranged one behind the other in a plurality of planes in the housing (6).

**Claim 8 (original).** Mixer/heat exchanger according to Claim 1, wherein fins (2a, 2b) arranged on adjacent tubes (132, 132') overlap each other.

**Claim 9 (original).** Mixer/heat exchanger according to Claim 1, wherein the fins (2a, 2b) of successive layers of fins (7, 8) are staggered with respect to one another along the tubes (1, 1', 1'').

**Claim 10 (original).** Mixer/heat exchanger according to Claim 1, wherein the radial extent of the fins (2a, 2b) on a tube amounts to at least 0.5 times the internal diameter of the tube (1).

**Claim 11 (original).** Mixer/heat exchanger according to Claim 1, wherein the inside wall of the tubes (1, 1', 1'') are contoured to increase their surface area.

**Claim 12 (previously presented).** Mixer/heat exchanger according to Claim 1, wherein some of the fins (2, 2a', 2b, 2b') of the tubes (1) are hollow, and the hollow space therein is in communication with the interior of the tube (1).

**Claim 13 (original).** Mixer/heat exchanger according to Claim 1, wherein the tubes (1, 1', 1'') are provided with a resistance heating element or an electrical cooling element.

**Claim 14 (original).** Mixer/heat exchanger according to Claim 1, wherein the tubes (1, 1', 1'') or the fins (2a, 2b), or both the tubes and the fins are coated with a catalyst.

**Claim 15 (original).** Mixer/heat exchanger according to Claim 1, wherein the tubes (1, 1', 1'') are arranged at an angle  $\gamma$  of at most  $\pm 15^\circ$  in the housing (6), as seen in

the transverse direction with respect to the overall flow direction through the housing from the product inlet to the product outlet.

**Claim 16 (original).** Mixer/heat exchanger according to Claim 1, wherein the tubes (1, 1a) which are provided with fins (2a, 2b) are arranged one behind the other in the overall flow direction through the housing, from the product inlet to the product outlet, in a plurality of planes in the housing (6), and the tubes (1) belonging to adjacent planes have differently dimensioned fins (2a, 2b) than each other.

**Claim 17 (original).** Mixer/heat exchanger according to Claim 1, wherein the mixer/heat exchanger has at least one substance-introduction tube, which is arranged parallel to the other tubes (1), is provided with fins (2a, 2b) and has a plurality of openings (14) leading to the interior of the housing (6).

**Claim 18 (currently amended).** Mixer/heat exchanger according to Claim 1, ~~wherein the tubes~~ wherein the tubes comprise an interior nozzle (3') of reduced diameter compared to the inside diameter of the tubes, said nozzle being disposed approximate the discharge end of the tube.

**Claim 19 (original).** A method for controlling the temperature of viscous substance systems having a viscosity of from 0.001 to 20,000 pa.s, which comprises passing said substance systems through the mixer/heat exchanger of Claim 1, and heating or cooling said substance systems by heat transfer through the tubes of said mixer/heat exchanger.

**Claim 20 (original).** The mixer/heat exchanger of Claim 1, wherein said angle  $\alpha$  is 70° to 110°.

**Claim 21 (original).** Mixer/heat exchanger of Claim 11, wherein said inside walls are contoured in the form of longitudinal ribs.